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**U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE**

**Exhibit C**

**OBJECTIVE DESCRIPTION OF VARIETY  
Verbena (Verbena spp.)**

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country)		FOR OFFICIAL USE ONLY
		PVPO NUMBER

**PLEASE READ ALL INSTRUCTIONS CAREFULLY:**

In the spaces on the left, enter the appropriate numbers that describe the characteristics of the application variety. On the right, enter the appropriate numbers that describe the characteristics of the most similar comparison variety. Right justify whole numbers by adding leading zeros if necessary. The variety that you choose for comparison should be the most similar one in terms of overall morphology, background and maturity. The comparison variety should be grown in field trials with the application variety for 2-3 location/years (environments) in the region and season of best adaptability. In general, measurements of quantitative traits should be taken from one trial on 15-25 randomly selected plants or plant parts to obtain averages and statistics that describe a typical field of the variety.

CODES FOR COLORS (use below where appropriate):

- |                   |                   |                  |                       |
|-------------------|-------------------|------------------|-----------------------|
| 01 = Light Green  | 02 = Medium Green | 03 = Dark Green  | 04 = Very Dark Green  |
| 05 = Green-Yellow | 06 = Pale Yellow  | 07 = Yellow      | 08 = Yellow-Orange    |
| 09 = Orange       | 10 = Salmon       | 11 = Pink-Orange | 12 = Pink             |
| 13 = Light Red    | 14 = Red          | 15 = Dark Red    | 16 = Pale Purple      |
| 17 = Purple       | 18 = Dark Purple  | 19 = Light blue  | 20 = Blue             |
| 21 = Dark Blue    | 22 = White        | 23 = Cream       | 24 = Other (Describe) |

**1. GENERAL INFORMATION:**

\_\_\_ Type of Variety: 1 = Hybrid 2 = Inbred (self-pollinated) 3 = Open Pollinated

\_\_\_ Species: 1 = Bonarinesis 2 = Canadensis 5 = Gooddingii 4 = Hastata  
 5 = X Hybrada (=X Hortensis) 6 = Laciniata 7 = Officinalis  
 8 = Peruviana (=Chamaedrifolia) 9 = Pulchella (=Tenera)  
 10 = Rigida (=Venosa) 11 = Tenuisecta  
 12 = Other (specify) \_\_\_\_\_

\_\_\_ Region Where Developed: 1 = Northwest USA 2 = North Central USA  
 3 = Northeast USA 4 = Southeast USA  
 5 = South Central USA 6 = Southwest USA  
 7 = Other \_\_\_\_\_

\_\_\_ Recommended Use: 1 = Bedding 2 = Pot 3 = Not Specific

Comparison Variety Name \_\_\_\_\_

Comparison Seed Source \_\_\_\_\_

\_\_\_ Type of Variety

\_\_\_ Species

\_\_\_ Region Where Developed

\_\_\_ Recommended Use

**2. MATURITY (In Region of Best Adaptability):**

\_\_\_ Days From Emergence to First Flower

\_\_\_ Days From Emergence to 50% of Plants in Flower

\_\_\_ Days From Emergence to First Flower

\_\_\_ Days From Emergence to 50% in Flower

Note: Use color choices on first page and published color chart to describe color traits.

Application Variety Data	Comparison Variety Data
<p><b>3. PLANT (continued)</b></p> <p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ cm Plant Height                    _____    _____</p> <p>___ • ___ cm Plant Width (Spread)                    _____    _____</p> <p>___ Habit: 1 = Spreading, Procumbent    2 = Upright, Bushy</p>	<p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ cm Plant Height                    _____    _____</p> <p>___ • ___ cm Plant Width                    _____    _____</p> <p>___ Habit</p>
<p><b>4. LEAF:</b></p> <p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ mm Leaf Width                    _____    _____</p> <p>___ • ___ mm Leaf Length                    _____    _____</p> <p>___ Leaf Color: (Munsell code _____)</p> <p>___ Leaf Division: 1 = None    2 = Lobed    3 = Cleft    4 = Parted 5 = Other (Specify) _____</p> <p>___ Margins: 1 = Entire    2 = Dentate    3 = Crenate    4 = Serrate 5 = Other (Specify) _____</p> <p>___ Attachment: 1 = Sessile or Nearly So (Peruviana)    2 = Stalked</p>	<p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ mm Leaf Width                    _____    _____</p> <p>___ • ___ mm Leaf Length                    _____    _____</p> <p>___ Leaf Color (Munsell code _____)</p> <p>___ Leaf Division</p> <p>___ Margins</p> <p>___ Attachment</p>
<p><b>5. INFLORESCENCE:</b></p> <p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ Number of Florets Per Spike                    _____    _____</p> <p>___ • ___ cm Width of Inflorescence                    _____    _____</p> <p>___ • ___ cm Height (Depth) of Inflorescence                    _____    _____</p> <p>___ Inflorescence Type: 1 = Solitary    2 = Panicle    3 = Cyme    4 = Corymb</p> <p>___ Spike Openness (at Seed Stage): 1 = Compact    2 = Open</p> <p>___ Spike Shape: 1 = Flat    2 = Dome    3 = Globe 4 = Other (Specify) _____</p>	<p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ No. Florets/Spike                    _____    _____</p> <p>___ • ___ cm Width                    _____    _____</p> <p>___ • ___ cm Height                    _____    _____</p> <p>___ Inflorescence Type</p> <p>___ Spike Openness</p> <p>___ Spike Shape</p>
<p><b>6. FLOWERS:</b></p> <p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ mm Floret Diameter                    _____    _____</p> <p>___ • ___ mm Eye Diameter                    _____    _____</p> <p>___ • ___ mm Margin Width                    _____    _____</p> <p>___ Petals: 1 = Not Ruffled    2 = Ruffled</p> <p>___ Monocular or Basic Color (Munsell code _____)</p> <p>___ Eye Color (Munsell code _____)</p> <p>___ Margin Color (Munsell code _____)</p> <p>___ Stripe Color (Munsell code _____)</p> <p>___ Other Color (Specify location and Munsell codes) _____</p>	<p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ mm Floret Diameter                    _____    _____</p> <p>___ • ___ mm Eye Diameter                    _____    _____</p> <p>___ • ___ mm Margin Width                    _____    _____</p> <p>___ Petals</p> <p>___ Basic Color (Munsell code _____)</p> <p>___ Eye Color (Munsell code _____)</p> <p>___ Margin Color (Munsell code _____)</p> <p>___ Stripe Color (Munsell code _____)</p> <p>___ Other Color (describe)</p>
<p><b>7. SEEDS:</b></p> <p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ mg Weight per 1000 Seeds                    _____    _____</p>	<p style="text-align: right;">Standard Deviation    Sample Size</p> <p>___ • ___ mg Wt/1000 Seeds                    _____    _____</p>

Note: Use color choices on first page and published color chart to describe color traits.

Application Variety Data	Comparison Variety Data
<p><b>8. DISEASE, INSECT and ENVIRONMENT RESISTANCE</b> (Rate from 1 (most susceptible) to 9 (most resistant): (Leave blank if not tested.)</p> <p>A. Diseases</p> <p>__ Powdery Mildew</p> <p>__ Other (Specify) _____</p> <p>B. Insects:</p> <p>__ Leaf Miner</p> <p>__ Budworm</p> <p>__ Spinach Aphid</p> <p>__ Wooley Bear</p> <p>__ Other (Specify) _____</p> <p>C. Environment:</p> <p>__ Heat</p> <p>__ Cold</p> <p>__ Other (Specify) _____</p>	<p>A. Diseases</p> <p>__ Powdery Mildew</p> <p>__ Other (Specify) _____</p> <p>B. Insects:</p> <p>__ Leaf Miner</p> <p>__ Budworm</p> <p>__ Spinach Aphid</p> <p>__ Wooley Bear</p> <p>__ Other (Specify) _____</p> <p>C. Environment:</p> <p>__ Heat</p> <p>__ Cold</p> <p>__ Other (Specify) _____</p>

## REFERENCES:

Bailey, L.H. 1971. *Manual of Cultivated Plants*. MacMillan, New York, NY  
 Hay, R., P. M. Syngé. 1991. *The Colour Dictionary of Garden Plants with House and Greenhouse Plants*. Bloomsbury Books, London  
 Munsell Color Chart for Plant Tissues. Macbeth, P.O. Box 230, Newburgh, NY 12551-0230  
*The Wise Garden Encyclopedia*. 1990. Harper Collins Publishers, New York, NY

**9. COMMENTS:** Attach ONE photographic print of the application variety and the comparison variety described above, indicating the identity of each variety. This photograph should show flower heads of each variety at a magnification sufficient to identify most of the verbal descriptors given above. (Additional photographs or comments in support of this application may be supplied as part of the Exhibits B or D.)

## INSTRUCTIONS

Please read instructions carefully before completing the attached form. The Objective Description Form is a necessary part of an application for Plant Variety Protection (Breeder's Rights) in the United States of America. It is designed to guide the applicant in describing a plant variety in detail so that comparisons with other varieties may be done in a meaningful way. It is in the applicant best interest to describe the application variety as completely as possible to establish an adequate variety description.

The applicant's name and complete address should be at the top of the form. The country should be included since it is needed when mailing to some areas. The name of the variety is also entered at the top of the form. The Plant Variety protection Office will assign a unique PVPO Number to each application and enter it below the variety name.

A list of color choices is given at the top of the form. The color choices are to be used, along with the color codes from the "Munsell Color Chart" or other published color chart when describing a color trait of the variety.

Choose one variety to use as a comparison variety throughout the Objective Description Form. Describe the comparison variety in the right-hand column for all traits on form. The variety that you choose should be the most similar one in terms of background and morphology. It should be the same one used in the Exhibit B to describe the novelty of the application variety. The comparison variety should be grown in trials with the application variety for 2-3 location/years (environments) in the region of best adaptability. The varietal and environmental data collected should remain available for an additional 3 years to resolve any questions concerning comparisons or descriptions of varieties.

In general, the measurements of quantitative traits should be taken **in one trial on 15-25 randomly selected plants or plant parts** to obtain averages and statistics that describe a typical planting of the variety. For each of the measurable traits, report the mean, the number of plants measured, and the standard deviation.

$$\text{Standard Deviation} = \sqrt{\frac{\sum(X-\bar{X})^2}{(N-1)}}$$

**DISEASE AND INSECT REACTIONS:** Test as many disease and insect reactions as possible BEFORE applying for protection. **BEST:** Test reactions for at least the 5 most common diseases or insects for the region in which the variety is best adapted. Many older varieties were tested extensively for disease and insect reactions. More complete information in these sections of the application may speed the determination of distinctness.